



Interstate 81 Corridor Improvements Past and Present

October 19, 2011

Richard Caywood, P.E.

Salem District Administrator

Map- Overview

- I-81 begins at I-40 in Tennessee and extends through Virginia, West Virginia, Maryland, Pennsylvania and New York to Canada.
- Total of 855 miles
- It is one of the top eight trucking routes in the United States.

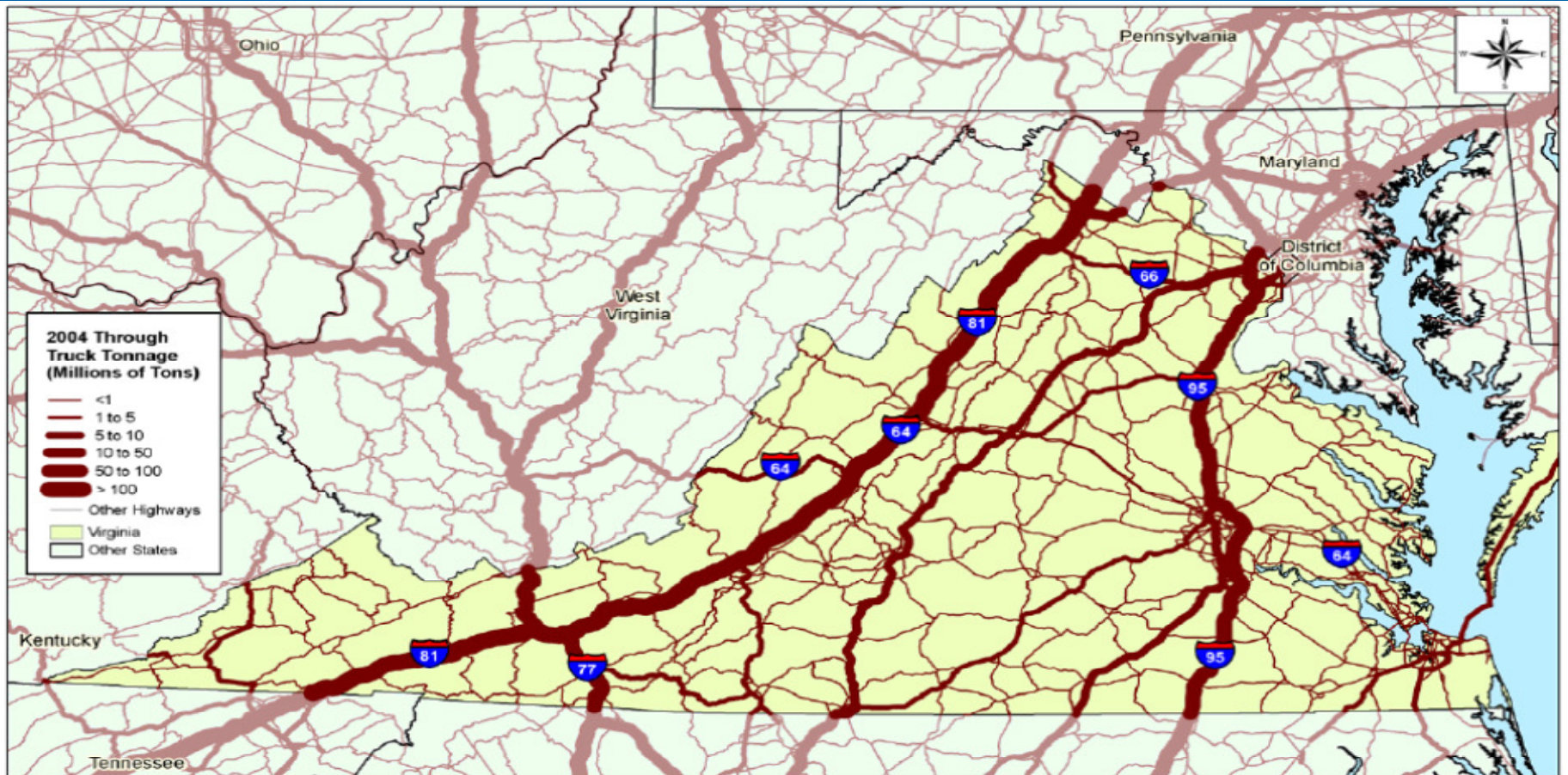


Facts and Figures

- 48,000 vehicles per day (vpd)
- 60,000 vpd near Roanoke and Winchester
- Traffic has more than doubled in the last 20 years, and in urban areas, tripled.
- Designed for 15% truck traffic
- Currently averages about 26% trucks, some areas as high as 37%

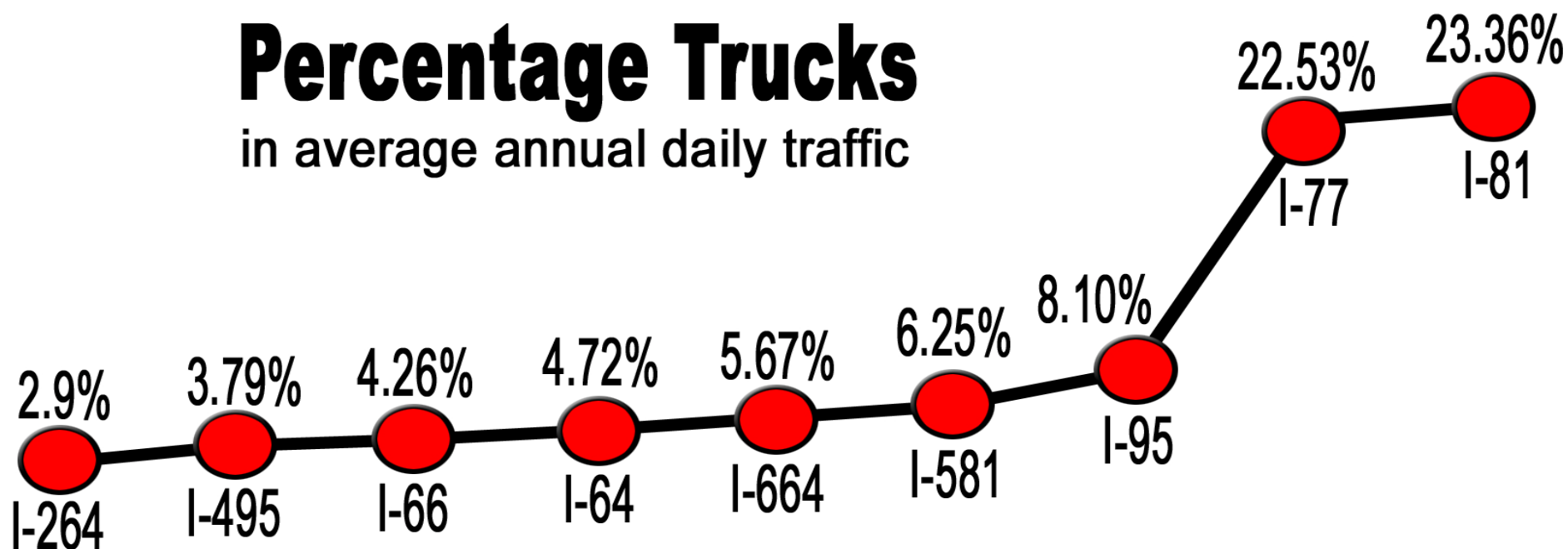


Through Truck Tonnage on Virginia Highways

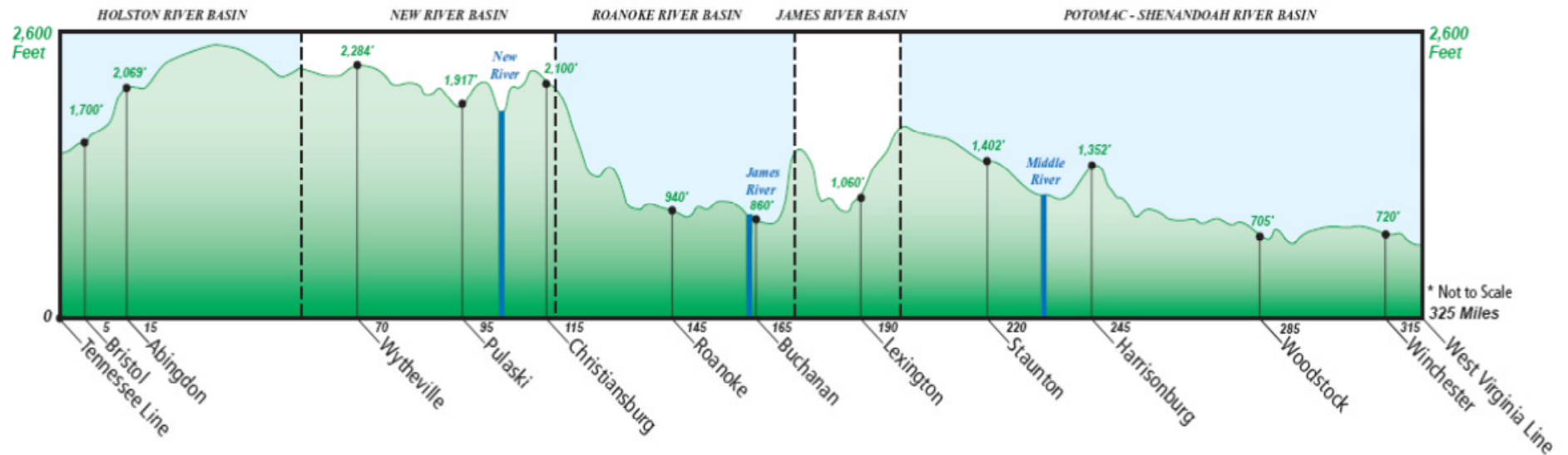


Percentage Trucks

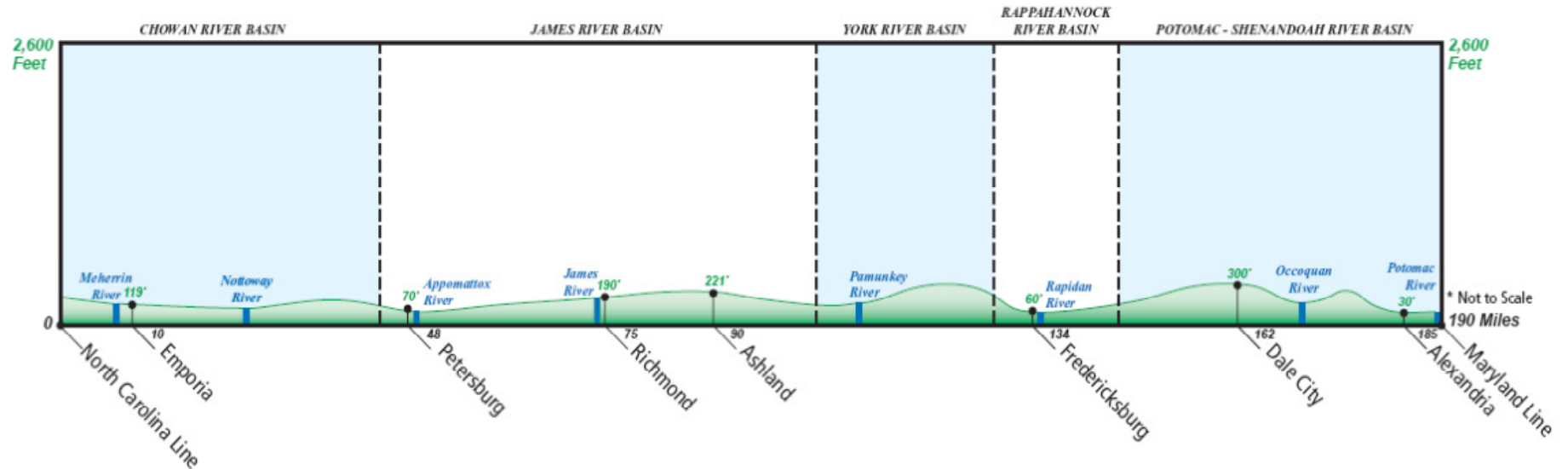
in average annual daily traffic



I-81 ELEVATION PROFILE



I-95 ELEVATION PROFILE



Educational Corridor

- *“Higher Education Corridor”* with more than 30 institutions and nearly 135,000 students
- At least half of all Virginia college students and their families use I-81



Increased Congestion

- Increase in truck traffic - designed to handle only 15% percent truck traffic, now handles 20-40% trucks
- Volume of commercial traffic requires additional capacity



Design Projects

- In 1998, VDOT completed 10 feasibility studies which showed at least three lanes are needed in each direction.
- Widening is projected to take more than 20 years and \$3 billion to complete.



UPDATE

I-81 Virginia Keeps America Moving

Winter 1996

VDOT launches I-81 improvement study

The Virginia Department of Transportation has begun a major effort to plan and design road improvements for Interstate 81. Most notably, the department is in the very early stages of studying I-81 and developing a plan to widen and improve Virginia's segment of the interstate. If approved, the plan could take more than 20 years to carry out.

"VDOT is taking a broad look at the entire interstate and planning for changes that will keep Virginians – and Americans – moving safely through our state," said David R. Gehr, Commonwealth Transportation Commissioner. "We want citizens and organizations outside VDOT involved in the planning to see that all feasible road design options and new technologies are considered before we break ground."

VDOT, research and planning groups involved

Within VDOT several different technical divisions are working on I-81 improvements. One effort, led by the agency's Location and Design division, is coordinating 10 "conceptual studies" to decide the best way to widen sections of the interstate. VDOT's Traffic



Traffic volume on scenic Interstate 81 has nearly tripled in the last 25 years.

Engineering division is leading a group in exploring ways to use new technologies – known as Intelligent Transportation Systems – to keep traffic moving on I-81 during and after construction.

Meanwhile, VDOT is encouraging truck stops and other private businesses to build more rest stops and parking areas on the interstate. And the Transportation Planning division, as part of an ongoing effort, is forecasting traffic trends for communities along I-81.

In addition, organizations like the Virginia Transportation Research Council, Virginia Tech's Center for Transportation Research, and local planners are developing plans and ideas for improving I-81.

Increasing traffic has led to safety concerns

The increasing traffic volume has created safety problems and traffic congestion on

the four-lane interstate. I-81, which is 30 years old, is carrying more and heavier vehicles than it was originally designed to handle. Traffic has nearly tripled in 25 years from 2.7 million daily vehicle miles traveled in 1970 to more than eight million in 1995.

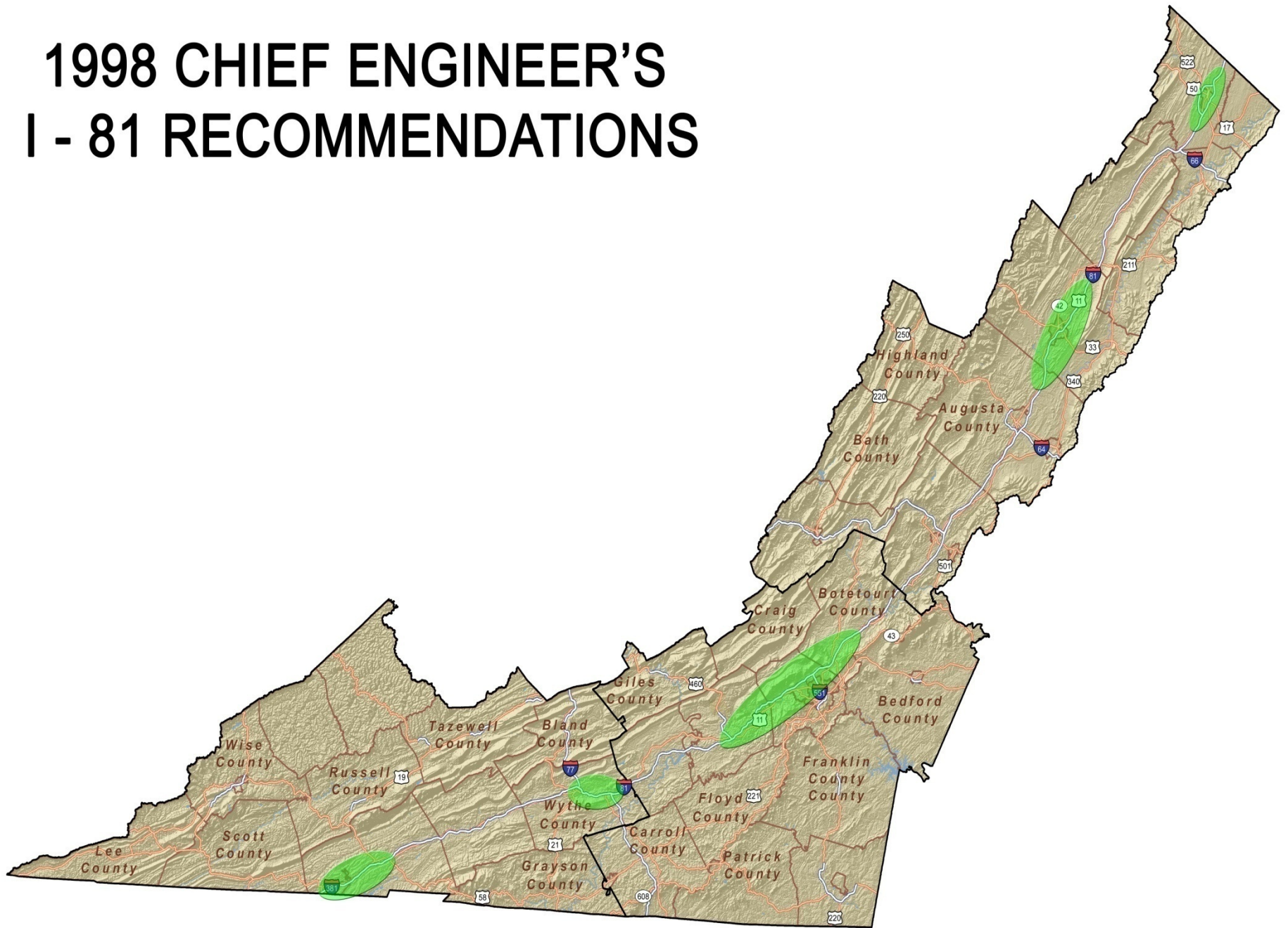
Another significant change has been the increase in truck traffic. Originally designed to handle only 15 percent truck traffic, the aging interstate now carries anywhere from 19 to 40 percent truck traffic, depending on the location.

Truck traffic will grow due to market demands

Truck traffic will continue to grow as American businesses increase their reliance on trucks to transport goods. In 1992, trucks carried 80 percent of all freight in Virginia, according to figures provided by

Continued on page 5

1998 CHIEF ENGINEER'S I - 81 RECOMMENDATIONS



Of the five areas recommended by the chief engineer, the CTB added funding to the 1999-2000 SYIP for preliminary engineering and studies for widening:

- Bristol District
 - *I-77/ I-81 overlap at Wytheville*
 - *Widening at the Virginia / Tennessee Border*
- Salem District
 - *16 miles from Salem to Troutville*
- Staunton District
 - *11 miles northbound (NB) and southbound (SB) in Rockbridge County*
 - *12 miles in Harrisonburg area*
 - *8 miles in the Winchester area*

Bristol District

- Acceleration and deceleration ramps at Exit 77 in Wythe County
- Extension of NB and SB deceleration lanes at Exit 80 in Wythe County
- Widening from Tennessee State line to Exit 7

Salem District

- Acceleration and deceleration lanes for several exits in Montgomery, Roanoke and Botetourt County
- Exit 110 Interchange Christiansburg / Blacksburg

Staunton District

- Acceleration and deceleration ramps in the Winchester area
- Abram's Creek NB interchange improvements at Exit 313
- Acceleration and deceleration ramps at Exit 247 in the Harrisonburg area
- Mile Marker (MM) 271 adjusted curve elevation in SB lane
- MM 195-202 Truck Climbing Lanes
- Maury River and Buffalo Creek Bridge widening

- Guardrail
 - *Upgrading for safety standards*
 - *New end treatments*
 - *Tested with today's vehicles: SUVs, pickups and minivans*



PPTA Proposals- Star Solutions and Fluor

- **Public Private Transportation Act of 1995 (PPTA)** – a Virginia procurement law that allows solicited or unsolicited proposals

Jan. 2002 - Unsolicited proposal from STAR Solutions (KBR) received

Sept. 2002 - STAR Solutions (KBR) proposal returned while solicitation for conceptual proposals was posted

Jan. 2003 - Two conceptual proposals received from Fluor Virginia, Inc. and STAR Solutions (KBR)

Mar. 2003 - CTB voted to move both proposals to next stage of review

Sept. 2003 - Detailed proposals received from both groups; I-81 PPTA Advisory Panel created

Feb. 2004 - Advisory Panel completed its evaluation; recommended STAR Solutions (KBR)

Mar. 2004 - Commissioner directed VDOT to enter negotiations with Star Solutions (KBR)

Jan. 2008 - KBR formally withdrew their proposal

November 2003

Memo of Understanding

Agreement between FHWA and VDOT to define the decisions and milestones for the Tier 1 I-81 Corridor Improvement Study.

Tier 1 Key Findings

- Traffic volume doubled by 2035
- 37% needs additional lane in each direction; other sections need more than one lane
- Rail alone does little to address future needs but could complement road improvements.



October 2006

CTB Resolution:

- Directed VDOT to finalize the I-81 Tier 1 Study, recommending one or two lanes of widening in each direction.
- Directed VDOT to continue short term safety and operational improvements on I-81
- Directed DRPT to conduct an I-81 Freight Rail Study

Now and The Future:

- In October 2006 the CTB directed VDOT to implement a program of safety improvements, including truck climbing lanes and interchange ramp extensions.
- Montgomery County truck climbing lane - \$89.5 million
- Rockbridge County truck climbing lane - \$82.9 million



Improving Interchanges:

Bristol District

- Exit 7 – Additional lanes, turn lanes and improved signalization.
- Exit 14 – Replace NB and SB mainline bridges and remove a weaving section of the NB lane. Also adding lanes under the bridge and will make improvements to the SB off-ramp.
- MM 44 (Marion area) – Replace I-81 Bridges over Scatch Gravel Road near Exit 45 in fall 2011.

Salem District

- Interchange improvements at Exit 105
- Exit 150 interchange improvements

Staunton District

- Exit 213 (Augusta County) – Extend acceleration lanes.
- Exit 310 (Winchester area) – Interchange improvements.
- Exit 317 (Winchester area) – Extend NB deceleration lanes.

Improving Safety:

- Continue guardrail upgrades.
- Install and upgrade rumble strips in new 70 mph zones.
- Overhead sign upgrades.
- Sign panel overlays.
- Improve super-elevation from MM 168 to MM 167 SB along with guardrail improvements and flashers for curve warning signs.
- Northern Shenandoah Valley Improvements (MM 280 to MM 302) with signing, pavement markings, tree removal and guardrail upgrades.

Upgrading Structures:

Bristol District

- Rehabilitation of bridges to include epoxy overlay, concrete repair and painting of structural steel projects planned for eight structures on I-81 NB and SB at MM 32.4, 64.7, 64.6 and 71.6.

Salem District

- Bridge replacements:
 - over Route 8 in Christiansburg,
 - Route 112 in Roanoke County,
 - Route 11 in Botetourt County,
 - Route 642 in Roanoke County,
 - and the I-581 ramp.



Staunton District

- NB bridge over Cedar Creek at the Shenandoah/Warren County line, MM 299.1

Investing in Pavement

Bristol District

- A full paving schedule will be implemented over the next year. This will involve paving in various locations along I-81 NB and SB.

Salem District

- I-81 Slab Jacking in Botetourt County
- Mill and inlay 5-miles in Pulaski County

Staunton District

- I-81 In-Place Pavement Recycling Project: Rehabilitated 3.7 miles of I-81 SB between Exits 217 and 213 in Augusta County.



- Re-establish Safety Service Patrol

- Incident management and coordination with public safety providers and I-81 corridor coalition member states

- Technology integration and sharing with adjoining states



Planning for the Future

I-81/I-77 Overlap Study

- One of the Sections of Independent Utility identified in the I-81 Corridor Improvement Study Tier 1 Environmental Impact Study (EIS)
- Extends from Exit 72 to Exit 81 on co-located Interstate 81 and 77 near Wytheville
- Tier 2 Draft Environmental Assessment (EA) approved July 26, 2011
- Public Hearing held September 28, 2011
- Completion of the EA anticipated Spring 2012

I-81 Corridor Coalition

- A partnership of local, regional and state organizations including private sector and non-profit organizations from the six states along the I-81 corridor.
- Improvement of freight and passenger movement through the corridor with a focus on incident management and safety.

I-81 Corridor Coalition

- Annual I-81 Corridor Coalition meeting will be held Oct. 31 and Nov. 1 in Blacksburg.
- Meeting to focus on FHWA involvement in I-81 Corridor based programs and rail freight within the Corridor.
- CTB members are invited.

Conclusions

- Ongoing truck climbing projects and operational / spot safety improvement projects will enhance safety and operations on I-81.
- Several critical bridge structures are included in the current six year improvement program.
- As freight traffic continues to increase, the Board will need to consider incremental capacity improvements especially in the most urbanized areas along the corridor using the Tier 1 EIS to guide priorities.